BEST COPY
AVAILABLE

Third United Nations International Conference on the Peaceful Uses of Atomic Energy

A/CONF.28/A/731
ITALY
February 1964
Submitted in:
ENGLISH and FRENCH

Confidential until official release during Conference

Abstract

ANALYSIS OF THE TECHNICAL AND ECONOMIC ASPECTS OF THE INCLUSION OF A NUCLEAR POWER STATION IN ELECTRIC NETWORKS OF VARIOUS SIZES FOR SELF-PRODUCERS OR FOR NATIONAL DISTRIBUTION

L. Biondi, C. Mussari, L. Orsoni and A. Vaudo
Montecatini, Milano, Italia

S. Pittori, C. Del Tredici, D. Dini, C. Fiaccavento,
A. Lamparelli and M.T. Visconti
Comitato Nazionale Energia Nucleare, Divisione Affari Internazionali
e Studi Economici, Roma, Italia

The paper is divided in three parts. In the first, the authors examine the technical and economic aspects of the problem concerning the inclusion of nuclear stations into a vast national power network. In the second part they consider the possible characteristics of a power network serving a number of companies which produce power for their own use with particular regard to the geographical distribution of use and production, seasonal, weekly and daily load diagrams, interchanges with external networks, etc.

It is stressed that such a network, necessarily smaller and with more peculiarities than a national power network, may give rise to specific problems, more difficult to solve as regards the economic inclusion of nuclear power sources.

The said power input, usually produced in massive quantities and with a considerable plant factor, could disturb - to a larger or lesser extent - the production of other, conventional stations.

The authors examine the criteria which the above-mentioned pre-existing network ought to meet in order that the production of the new type of power may be accepted in the most economic way.

Special attention is paid to the problems of interchange and assistance which the advent of nuclear energy could involve between the networks producing their own power and the external power networks; hence the

necessity for a co-operation policy between self-producers and power companies.

The third part of the paper illustrates a calculation code devised for numerical electronic computers with a view to analysing the economic characteristics of a nuclear power station included in a network of any size and feature.